REMARKS

The Examiner is thanked for the performance of a thorough search. Each issue raised in the Office Action mailed July 29, 2004 is addressed hereinafter.

I. STATUS OF THE CLAIMS

Claims 1 – 4, 6 – 17 and 19 - 30 are pending in the application.

II. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 1-2, 6-9, 14-16, 20-22, 24-25, and 27-30 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. (U.S. Pat. No. 6,104,700).

Applicant respectfully disagrees.

Claim 1 appears as follows:

> 1. A method of selectively establishing a quality of service value for a particular network device in a network that comprises a plurality of other heterogeneous network devices, comprising the steps of:
> receiving application information that defines one or more traffic flows associated with one or more message types generated by an application program, including information identifying one or more points at which an application generates the traffic flows;

receiving device information that defines one of more quality of service treatments that the particular network device may apply to data processed by the particular network device;

based on the device information and the application information, determining one or more processing policies that associate the traffic flows with the quality of service treatments;

creating and storing one or more mappings of the application points to the quality of service treatments that may be used with the processing policies to generate the quality of service value when the application program generates traffic flows of one of the message types;

causing generation of the quality of service value, wherein the generation of the quality of service value is based on said one or more mappings and is performed before transmitting said traffic flows of one of the message types to said network;

enforcing one of the processing policies at the network device in response to receiving traffic from the application program that matches the traffic flow type; and

wherein enforcing one of the processing policies comprises:

requesting, using an application QoS policy element that is tightly coupled to the application program, an operating system function to modify a packet of the traffic flows using a policy element that requests a different operating system function according to the operating system then in use; and

at the network device, in response to receiving traffic from the application program that matches the traffic flow type and in response to the operating system function, modifying the

packet to activate a quality of service treatment of the network device.

In particular, Haddock does not disclose a system that enforces one of the processing policies at the network device in response to receiving traffic from the application program that matches the traffic flow type, wherein enforcing one of the processing policies comprises: requesting, using an application QoS policy element that is tightly coupled to the application program, an operating system function to modify a packet of the traffic flows using a policy element that requests a different operating system function according to the operating system then in use, and at the network device, in response to receiving traffic from the application program that matches the traffic flow type and in response to the operating system function, modifying the packet to activate a quality of service treatment of the network device as claimed in the invention. Haddock does not contemplate such a system. As per the Office Action, Martin does not teach such a system. The Office Action further states:

> "However, in analogous art, Haddock discloses modifying the traffic group (packet) based on the terms of the quality of service policy. Based on the modification, the quality of service policy can be activated (column 5, lines 31-67)."

This interpretation of Haddock is incorrect. Haddock does not modify the packet. Haddock allows the user to define logical groupings of traffic via a UI. The traffic groupings are used by Haddock's system to route traffic. Haddock does not mention or contemplate the modification of packets. Col. 5, lines 11-67 state:

"The UI 145 receives information indicative of one or more traffic groups. This information may be provided by the network manager. There are several ways to define a traffic group. Table 1 below illustrates a variety of traffic classification schemes that may be supported by the UI 145.

TABLE 1

Traffic Classification Policy Based Upon	Traffic Group Definition	OSI Layer
Applications	TCP Session UDP Session RSVP Flow	Transport Layer
Network Layer Topology or Groups of Users	Network Layer Protocol Subnet or IP Address VLAN Identifier	Network Layer
End-Station Applications	MAC Address 802.1p or 802.1Q	Link Layer
Physical Topology	Physical Port	Physical Layer

The information used to identify a traffic group typically depends upon what terms the QoS policy is defined. If the QoS policy is based on applications, traffic groups may be differentiated at the Transport layer by Transmission Control Protocol (TCP) session or User Datagram Protocol (UDP) session. For example, the network manager may provide information indicative of TCP source and destination ports and IP source and destination addresses to identify traffic groups. However, if the QoS policy is based upon the Network layer topology or groups of users, traffic group definition may be more convenient by supplying information regarding the Network layer protocol, such as Internet Protocol (IP) or Internetwork Packet Exchange (IPX), the subnet or IP addresses, or VLAN identifiers. If the QoS policy is defined by end-station applications, then Media Access Control (MAC) addresses, IEEE 802.1p priority indications, or IEEE 802.1Q frames may be employed to identify traffic groups. Finally, if the QoS policy is physical topology based, physical port identifiers may be used to differentiate traffic groups.

It should be noted that Table 1 merely presents an exemplary set of traffic group identification mechanisms. From the examples presented herein, additional, alternative, and equivalent traffic grouping schemes and policy considerations will be apparent to those of ordinary skill in the art. For example, other state information may be useful for purposes of packet classification, such as the

history of previous packets, the previous traffic load, the time of day, etc.

It is appreciated that traffic classifications based upon the traffic group definitions listed above may result in overlap. Should the network manager define overlapping traffic groups, the UI 145 may issue an error message and reject the most recent traffic group definition, the UI 145 may issue a warning message to the network manager and allow the more specific traffic group definition to override a conflicting general traffic group definition, or the UI 145 may be configured to respond in another manner."

Haddock teaches away from the invention claimed in Claim 1 by teaching that logical groupings of traffic groups are used to map to QoS queues. Packets are routed and not modified. Col. 6, lines 1-40 state:

"A number of QoS queues 180 may be provided at each of the ports of a packet forwarding device. In one embodiment, a mapping of traffic groups to QoS queues 180 may be maintained. As traffic groups are provided by the network manager, the UI 145 updates the local mapping of traffic groups to QoS queues 180. This mapping process may be a one-to-one mapping of the traffic groups defined by the network manager to the QoS queues 180 or the mapping process may be more involved. For example, there may be more traffic groups than QoS queues 180, in which case, more than one traffic group will be mapped to a single QoS queue. Some consolidation rules for combining multiple traffic groups into a single QoS queue will be discussed below.

At any rate, by providing a layer of abstraction in this manner, the network manager need not be burdened with the underlying implementation details, such as the number of QoS queues per port and other queuing parameters. Another advantage achieved by this layer of abstraction between the traffic group definitions and the physical QoS queues is the fact that the UI 145 is now decoupled from the underlying implementation. Therefore, the UI 145 need not be updated if the hardware QoS implementation changes. For example, software providing for traffic group definition need not be changed simply because the number of QoS queues per port provided by the hardware changes.

The input data stream is received by the comparison engine 155 from input switch ports (not shown). Under the direction of the packet classification process 150, the comparison engine 155 determines with which of the previously defined traffic groups a packet in the data stream is associated. The packet classification block 150 may employ the traffic group indications provided by the network manager to provide the comparison engine 155 with information regarding locations and fields to be compared or ignored within the header of a received packet, for example. It should be appreciated if the comparison required for traffic

> classification is straightforward, such as in a conventional packet forwarding device, then the comparison engine 155 and the packet classification block 150 may be combined."

Therefore, Martin in view of Haddock et al. does not teach or disclose the invention as claimed.

Claim 1 is therefore allowable. Independent Claims 20, 21, 29, and 30 are similarly allowable. Claims 2, 6-9, 14-16, and 28 are dependent upon Claim 1 and are allowable. Claims 22, 24, 25, and 27 are dependent upon Claim 21 and are allowable. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

III. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 3-4 and 23 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. in further view of Chapman et al. (U.S. Pat. No. 6,028,842).

The rejection under 35 USC §103(a) is deemed moot in view of Applicant's comments regarding Claims 1, 20, 21, 29, and 30, above. Claims 3-4, and 23 are dependent upon Independent Claims 1 and 21, respectively. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

IV. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claims 10-11, 17, 19 and 26 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. and in further view of Chapman in further view of Mohaban et al. (U.S. Pat. No. 6,463,470).

The rejection under 35 USC §103(a) is deemed moot in view of Applicant's comments regarding Claims 1, 20, 21, 29, and 30, above. Independent Claim 19 is similarly allowable. Claims 10-11, 17, and 26 are dependent upon Independent Claims 1 and 21, respectively. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

V. REJECTION BASED ON 35 U.S.C. §103(a)

The Office Action has rejected Claim 12-13 under 35 USC §103(a) as being unpatentable over Martin in view of Haddock et al. and in further view of Schwaller et al. (U.S. Pat. No. 6,061,725).

The rejection under 35 USC §103(a) is deemed moot in view of Applicant's comments regarding Claims 1, 20, 21, 29, and 30, above. Claims 12-13 are dependent upon Independent Claim 1. Therefore, Applicant respectfully requests that the Examiner withdraw the rejection under 35 USC §103(a).

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

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CERTIFICATE OF MAILING

I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

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